Form ESA-B4. Final Public Report ESA-090-2
GM Ft Wayne Assembly – Final

Company	General Motors	**ESA Dates**	October 23 – 25, 2007
Plant	Ft Wayne Assembly	**ESA Type**	Steam Assessment
Product	Automotive	**ESA Specialist**	Don Schmidt dschmidt@geosltd.com
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ENERGY SAVINGS OPPORTUNITY SUMMARY INFORMATION

Identified Opportunity	Savings/yr				
		kWh	**MMBtu**	**Fuel Type**	**N,M,L**
No. 1 - Modify operation of back pressure steam turbine		1,526,316	-1,206	NG	N
No. 2 – Increase Boiler Efficiency		0	9,114	NG	N

Brief Narrative Summary Report for the Energy Savings Assessment:

Introduction:

An Energy Savings Assessment, focused primarily on boiler plant steam systems, was conducted at the General Motors Ft. Wayne Assembly Facility from October 23, 2007 through October 25, 2007.

Objective of ESA:

The objective of the ESA was to introduce the facility staff to the US Department of Energy Steam Tools software suite and to investigate energy saving projects using the software.

Focus of Assessment:

Due to the size of the site, the focus of the assessment was mainly limited to steam generation systems at the site steam plant.

Approach for ESA:

The ESA was conducted by inspection, data collection, review of operating records and interviewing plant staff and management.

Opportunity No. 1 – Modify Operation of back pressure steam turbine – Near Term Opportunity

Through SSAT modeling and inspection of steam flow and hour meter readings, it was noted that the steam turbine drives for the boiler plant auxiliaries were not operating as often as they could.

Opportunity No. 2 – Increase Boiler Efficiency – Near Term Opportunity

The No. 3 boiler (the one that operates on land fill gas) is the "base load" boiler and is fitted with a "low excess air" burner. It was noted operating at approximately 5% excess Oxygen. It was noted that this boiler has historically operated at levels as low as 0.5% at full load. Based on typical firing curve slopes, the estimated oxygen concentration for the observed load is approximately 1.5%.

It is proposed to review the O2 trim control system and the associated curves and readjust the boiler to operate at a lower excess oxygen level. It was noted that the boiler damper may not seal sufficiently to reduce the excess oxygen to the new levels. It is suggested that a VFD be fitted to the fan to reduce the pressure drop and better damper sealing. Electrical savings and costs for the VFD were not evaluated.

- Near term opportunities would include actions that could be taken as improvements in operating practices, maintenance of equipment or relatively low cost actions or equipment purchases.
- Medium term opportunities would require purchase of additional equipment and/or changes in the system such as addition of recuperative air pre-heaters and use of energy to substitute current practices of steam use etc. It would be necessary to carry out further engineering and return on investment analysis.
- Long term opportunities would require testing of new technology and confirmation of performance of these technologies under the plant operating conditions with economic justification to meet the corporate investment criteria.

Percent of Total Energy Expense – by opportunity term

	Near Term	Medium Term	Long Term
Percent Fuel Savings	1.2%	2.4%	0%
Percent Electrical Savings	1.0%	0%	0%

Management and UAW Support and Comments:
A corporate level management team and the UAW/WFG Joint Task Team encourage any effort that reduces the Energy usage at all of its plants located around the country. General Motors has a target to reduce energy use and costs by 6% this year. They have an Energy Engineer with this assignment at each facility.

The UAW/WFG Joint Task Teams have identified several Department of Energy (DOE) best practices that will have a significant impact if implemented at GM Facilities. Due to the focus of the Best Practices there is an opportunity for our UAW Skilled Trades to provide a substantial cost savings impact to the operating costs of our facilities by working jointly with the GM/WFG management organization.

UAW/WFG Joint Task Team, DOE associated Best Practices:
BMES-01 Pumping System Assessment Tool
BMES-02 Air Master + Diagnostic Tool
BMES-03 Motor Master + Diagnostic Tool
BMES-04 Steam System Assessment Tool
BMES-07 Fan system Assessment Tool
BMES-09 Chilled Water System Assessment Tool

The UAW Skilled Trades working in conjunction with the GM/WFG Energy & Utilities Services Group (EUSG) and the GM/WFG Facilities Management Group (FM) can jointly pursue the effort to optimize the operating efficiencies of these major systems that are found in GM facilities.

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